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Uncertainty, Complexity, Conflicts of Interest, Emotional Involvement, and the Quality of Crisis Thinking

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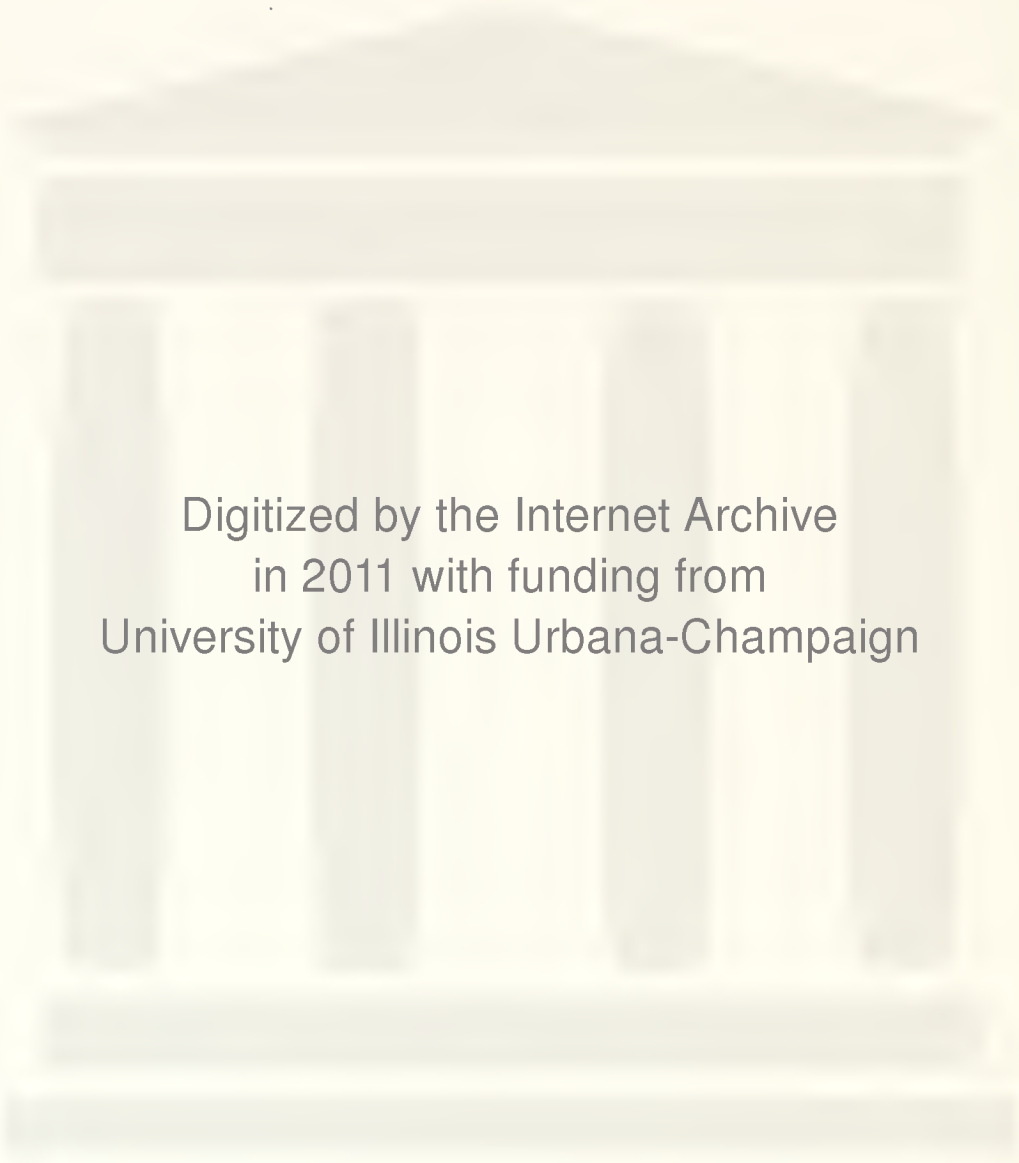

Abstract

This paper begins with a brief survey of research evidence establishing that crisis decisions -- as opposed to routine decisions -- are characterized by uncertainty, complexity, conflicting interests, and ego involvement.

The following section integrates empirical evidence from many research fields to how two main features of human information processing -- cognitive expansion and cognitive reduction -- interact with the formidable challenges of uncertainty, complexity, and multiple interests to affect decision making in a crisis.

Lastly, the paper briefly describes and evaluates a number of promising techniques geared toward decision making with the practical difficulties of responding to crises.

UNCERTAINTY, COMPLEXITY, CONFLICTS OF INTEREST, EMOTIONAL INVOLVEMENT, AND THE QUALITY OF CRISIS THINKING

Charles I. Stubbart

I. THE INFORMATION PROCESSING DEMANDS OF CRISIS DECISIONS

1. "WICKED PROBLEMS"

Pure ill-structured, "wicked problems" have several characteristics, including: no definitive problem formulation, no single criteria system or rule defines correct solutions, no stopping rule for ending formulation process, an innumerable list of possible operations on the problem, uncertainty about attacking the problem at a proper level, and that each wicked problem is unique.

Four characteristics of crises make them very wicked: uncertainty, complexity, conflicts of interest, and emotional involvement.

i. Uncertainty. Organizational environments are becoming increasingly "turbulent" (Toffler, 1970). Correspondingly, Braybrooke & Lindblom (1963), Mintzberg et. al. (1976), and Mason & Mitroff (1979) point out that decision making essentially entails a process of defining and coping with risky,

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complicated, ill-structured issues. Therefore, coping with uncertainty is a major element of crisis decision making.

ii. Complexity. Strategists face a daunting task of learning interrelationships among hundreds of company and industry phenomena. The complexity is intensified by unstable relationships among phenomena, long chains of cause and effect, wide ranges of potential strategic action, and large a number of participating individuals and groups.

Writers such as Quinn (1980), Mintzberg (1973), and Peters and Waterman (1982) place quite a bit of faith in strategists' intuition. But, one can easily name instances where intuitions have led to disasterous decisions. Studies show that highly trained professionals such as bankers and stock-market analysts (Clarkson, 1962) and business managers (Argyris & Schon, 1978) occasionally slip into psychological traps and use troublesome heuristics (Tversky & Kahneman, 1972). In strategic management research, Schwenk (1984) and Stubbart & Ramaprasad (1985) have demonstrated the difficulties which complexity poses for strategists.

Based on research evidence, making correct inferences about complex relationships presents a task which decision makers find difficult to master.

iii. Conflict of Interests. A particular organization represents only one minor interest in a broad inter-organizational network. Leading-edge models of decision making acknowledge the inevitable tradeoffs among organizational stakeholders, and try to incorporate multiple interests into the planning process (Freeman, 1984). Additionally, the whole field of social issues/ social responsibility in business reflects the changing and ambiguous nature of corporate responsibilities to stakeholding groups.

Consequently, contemporary strategists must weigh the multiple

interests which make claims on corporate affairs during a crisis.

iv. Ego involvement. We know from interior experience that our private interests and emotions can often affect thinking. From a motivation perspective, information has symbolic value, not just neutral, descriptive value. Accounts show that strategists actively cultivate their presentation-of-self (Harr, 1985; Iacocca & Novak, 1985). Strategists sometimes promote alternatives that make them "look good", which could easily be justified to other people (Staw, 1980). Furthermore, the responsibilities and autonomy of general management duties in a crisis guarantee vivid emotional experiences.

Therefore, general managers' emotional involvement in strategic planning form an important hidden issue to be taken into account as part of the task of planning.

2. SUMMARY.

Tackling crisis issues places exceedingly difficult demands on decision makers. Even though research has documented the chaotic, complex, and stressful nature of general manager's work (Mintzberg, 1973; Quinn, 1980; Kotter, 1982; Donaldson & Lorsch, 1983) few studies have either directly measured strategists' practical capacities for decision making during a crisis, or offered broad, practical techniques for getting the job done.

II. STRATEGISTS AS INFORMATION PROCESSORS: COGNITIVE ELABORATION AND COGNITIVE REDUCTION.

A pivotal question about cisis decision making can be posed as follows: If crisis decisions are characterized by uncertainty, complexity, conflicts of interest, and emotional involvement, can crisis thinking fulfill the information processing role envisioned?

1. MANAGERS AS INFORMATION PROCESSORS?

Building an empirical foundation for the cognitive aspects of decision making from scratch would entail an enormous task. Fortunately, research results from many fields have already laid a partial groundwork. Relevant issues have received extensive study in the fields of organization behavior, attribution theory, social psychology, social inference, behavioral accounting, consumer decision-making, artificial intelligence, and behavioral decision theory. It is against this background of empirical research, examining the skills and practical abilities of strategists that a viable basis for thinking about crisis thinking must be established.

Before launching into the research evidence on uncertainty, complexity conflict of interest, and emotional involvement, it is important to give a brief synopsis of two key features of human information processing -- cognitive elaboration, and cognitive reduction.

i. Active Information Processing. Strategic management stresses objectivity. "Objectivity" in the sense that right-thinking observers of objects and events must agree upon what these objects and events represent, and their derivative implications. Hence, theorists talk about the "objective environment." But, cognitive science raises unsettling questions about "objectivity."

Thinking about a crisis rapidly becomes enormously complex. Variables, explanations, consequences, causes, relationships, alternatives, participants, goals, and potentials form a dense mass. According to Bruner (1957):

"The most characteristic thing about mental life, over and beyond the fact that one apprehends the events of the world around one, is that one constantly goes beyond the information given."

Similarly, Lindsay & Normann (1972) describe an information-finding process

is mainly an interpretative activity:

> "A large part of the interpretation of sensory data is provided by the knowledge of what the signal must be, rather than from the information contained in the signal itself. This extra information comes from the context of the sensory event" (p. 133).

This means that human information processors are unlike computers — people are not "clerks." Instead, cognitive processes form a continuum. Automatic processes, requiring little attention, little effort, and minor mental activity, occupy one end of this continuum. Recognizing colors is an automatic process which offers some prospect for "objectivity." At the other end of the continuum lie "effortful processes . . . greatly influenced by such conditions as personal intention, learning, and social influence" (Kiesler & Sproull, 1982). Effortful processes invoke complex webs of sensing, coding, decoding, storing, selecting, channeling, etc. For example, in studying human memory, Bartlett (1932) and Neisser (1967) found that remembering is a dynamic, erratic process, intrinsically shaped by personal expectations, motivations, and ideas of what must-have-been. Many of the significant phenomena of in a crisis — "threats," "potential losses," "company image," "morale," — are not matters of direct sensory perception. As Neisser remarked:

> "Although we cannot always see only what we want to see, we generally can think what we like." (Neisser; 1967, p. 305).

Instead, consequences and phenomena are worked-over, abstract, linguistic interpretations.

Themes of active processing and "enactment" have recently tunneled their way into organization theory (Weick, 1979) and strategic management (Smircich & Stubbart, 1985; Chaffee, 1985). Enactment connotes an incorrigible subjective and historical aspect of management, opposite to many scholars' quest for impersonal, objective, approaches to knowledge and action.

Strategists are inquisitive about their industrial playgrounds. They want to know why things happen, to fully understand the games they are playing. Strategists actively combine new information into attributions, building complex schematic representations of an "environment," which provide a basis for inferences about strategic actions. However, their strategic knowledge and the wisdom of their actions inevitably rest on the active, shifting foundations of innumerable private memories, motives, experiences, interpretations and inferences (Hall, 1976, 1984). There is simply no neutral matrix for separating what is "given" from what is added by the "mind."

ii. Information Overload and Cognitive Reduction. The modern business environment teems with puzzling, complex, and uncertain facts and events. Individuals command limited mental capacity for noticing, and attending to information available to them (Miller, 1956). Simon (1955) wrote that in a context of infinite potential information, managers must arrange an infinitely reduced problem space — in line with their bounded rationality:

" Furthermore, managers "satisfice", choosing the first satisfactory solution . . . content to rely upon . . . a drastically simplified model of the buzzing, blooming confusion that constitutes the real world" (1955, p.xxix).

No crisis decision maker can possibly attend to more than a slight fraction of this tidal wave of potential information (Hambrick & Mason, 1984). For them, information overload is inevitable.

Studies show that coping with a tidal wave of information fosters subjective, idiosyncratic heuristics in strategy making (Keegan, 1974; McCaskey 1982; Schwenk, 1984; Duhaime & Schwenk, 1985, Barnes, 1984).

Because making crisis decisions involves enormous informational complexities, it also necessitates drastic representational simplifications.

3. SUMMARY.

Cognitive elaboration and cognitive reduction form a background for thinking about crisis decision making. The following sections summarize research evidence about cognitive elaboration and cognitive reduction as these affect decision making.

III. THINKING ABOUT UNCERTAINTY

1. COGNITIVE EXPANSION AND UNCERTAINTY

i. Information Search. Search is a outreaching and expansive process. Active search is best viewed as a positive choice, not a negative filtering or a cue-driven behavior (Neisser, 1967). It begins at the focal point of major uncertainties in the current organizational situation (Simon & March, 1958). The greater the uncertainty, the greater the incentive to actively search (Ebert & Mitchell, 1975). Whether strategists will search for information during a crisis partly depends upon the time pressure they feel. But, even under time pressure, they are likely to search for information not readily available from standard information systems. This kind of searching is active. If decision makers cannot find the right information along simple, familiar, well-worn paths in memory, they expand search; question people, head for their files, hire consultants, and so forth. Research shows the overwhelming importance search patterns have for later steps in decision making (Posner, 1973).

ii. Creativity. Relentless research effort has gone into explorations of the psychology of creativity. Topics have ranged from day-dreaming to studies of scientists (Roe, 1952) and writers (Barron, 1955), to introspective accounts of the creative process (Wallas, 1926).

Creative processes apparently require intensive thinking and experimenting during a protracted time (Wallas, 1926).

Simon (1966) describes creative thinking as a hierarchical building-up of elements. "Familiarizing" is a long term process of experimenting with representations of a problem and storing information about it. Long term goals and succeeding waves of experience interact to alter goals and alter memory. When a task is set aside, some problem information and goal information is always forgotten. When the problem is approached again, the problem solver must actively reconstruct goals and information, thereby altering what is "known" about that problem. This explains how periods of "tinkering" can lead to sudden strategic inspirations.

Although valuable strategic insights seldom occur, we know that some strategists are quite inventive (e.g. Steve Jobs of Apple; Ray Kroc of McDonald's; Alfred Sloan of General Motors).

If the response time to a crisis is quite short (such as Bhopal), then creative responses will probably not have time to gestate. But even in a case such as Bhopal, there are longer term responses which might allow creativite responses to develop.

2. COGNITIVE SIMPLIFICATION AND UNCERTAINTY

Besides processes which build more-complex representations, other processes work to simplify complex representations.

i. Automatic Attention. Individuals react to information which is concrete, salient, emotionally interesting and distinctive. For example, nearly everyone over 30 remembers the cisis starting November 22, 1963. Crises affect memory because they are susceptible to explanation, elaboration and innuendo. Vivid information can arrive as an event (such as the Surgeon General's Report on smoking; Miles & Cameron, 1982), or an impressive communication (Hijacker's demands). Salient people and events offer themselves as causes of other events (Taylor & Fiske, 1978).

For a business, crisis information includes: sudden large changes in financial ratios, unpleasant regulations, emergencies, scandals, flamboyant goings-on, spectacular competitive developments, or industrial disasters. Such developments direct a strategist's attention toward current goals. Strategists may attach greater significance to apparent crises than they really warrant (Kiesler & Sproull, 1982).

ii. Ignoring uncertainty. People often ignore uncertainty to avoid unwanted anxiety (Rokeach, 1960). For example, Cyert & DeGroot (1970) found that firms acted as if interest rates and unemployment policy would always remain at historical levels. Carter (1971) documented decision-makers efforts to reduce perceptions of uncertainty in a computer software firm. Borch (1968) noted that corporate managers expressed annoyance with consultants who couched their advice in probabilistic terms.

In a crisis the pressure for a rapid, definite response can repress uncertainties about the situation, alternatives, and consequences of different actions.

iii. Subjective Probabilities. Behavioral decison theory is a field which devotes nearly its entire effort toward examining decision making. Researchers have unearthed a large variety of disturbing findings (see Taylor, 1984, for specific references):

- People do not evaluate new information in the way that Bayes' Theorem should apply.
- Individuals inaccurately judge the importance of data types and sources
- Decision makers ignore the base rate at which phenomena occurred in the past
- People believe that events are likely if they can easily recall or imagine instances.
- Making effort toward a goal, or even anticipating such effort increases subjects' belief that a desired outcome would actually occur.

- Even sophisticated scientists make unwarranted generalizations using results derived from small samples.
- Extreme values overly impress many observers.
- People often make predictions about future events by anchoring on a cue (for example, last year's profit) and adjusting for the present situation (this year).

Although much of this evidence comes from non-crisis lab experiments using non-strategists, reseach evidence in the strategy field indicates that strategists too experience severe difficulties when dealing with uncertainty (Anderson & Paine, 1975, Wilensky, 1967; Yates, 1983).

3. OUTCOMES - UNRELIABLE FORECASTS.

Individual elaborative and reductive operations have organizational consequences. Accurate forecasts are a prerequisite for taking sensible actions in a crisis. Yet institutional forecasting efforts repeatedly fail (Ascher, 1978). Studies of forecasting accuracy in a variety of realms, the GNP, the stock market, technology, and political events always show an abysmal record.

IV. THINKING ABOUT COMPLEX STRATEGIC ISSUES IN A CRISIS

1.COGNITIVE EXPANSION AND COMPLEXITY

A strategist works under constant pressure to provide accurate explanations about events: for himself, for other organization members, and for outsiders. But, crisis events form a diverse, shadowy and multi-dimensional set. Therefore, strategists have great latitude in rifling through events, directing their attention toward certain categories of events, for attributing cause and effect explanations -- for creating idiosyncratic interpretations. Strategists' conclusions about their experience, in turn, form the knowledge base for thinking about plans.

i. Learning through Causal Attributions and Inference. Attribution research and concept learning studies how people explain causes and relationships among personality, behavior and events (see Nisbett & Ross, 1980 for specific studies).

- Subjects believe that fortuitous associative-pairing of events prove causal connections. Furthermore, learners are so anxious to find causal relationships, they even find explanatory rules in strings of random symbols or events.
- Explanations for an event often favor personality and dispositional causes over structural "scientific" explanations
- Learning becomes particularly difficult when people attempt to inductively grasp complex rules and interactions.
- The higher the memory load, the poorer the concept learning.
- People avoid complex calculations in favor of simpler heuristics.
- After subjects choose a tenable hypothesis they often accept confirming data and reject disconfirming data.
- Learners accept less-convincing data when they receive a lot of it and it arrives slowly.
- In the absence of readily apparent relations, subjects are extremely insensitive to covariation.
- Errors are magnified when data are observed sequentially as in everyday experience.

Given a strategist's pressing need to understand complex elements in a crisis situation, one may conjecture on this evidence that strategists use intricate but idiosyncratic knowledge about their companies, their industries, and the economic-social environment.

ii. Complex Knowledge Structures. Patterns in experience are organized into knowledge structures variously called schemas, scripts, or cognitive maps (Abelson, 1976; Cantor & Mischel, 1977; Taylor & Crocker, 1981).

> "Schemas . . . represent our knowledge about concepts, objects, situations, events, sequences of events, and actions. A schema contains, as part of its specification, the network of interrelations that is believed to normally hold among consitituents of the concept in question" (Rumelhart, 1980, p.34).

Complex schemas are elaborated through comprehension, accretion, memory trace, tuning and refinement. New experiences and thoughts constantly add increments to modify and extend schemas. Schemas impose structure, impart meaning, and define the parameters of interpretation for information, actions, and experiences; allowing individuals to cut corners and make quick efficient diagnoses — especially helpful during a crisis.

But schematic knowledge has vulnerabilities. Knowledge is tied to career histories (Dearborn & Simon, 1958). Schematic knowledge resists change (Kuhn, 1962). When people hold a complex schema, reinforcing evidence has a greater effect than disconfirming evidence. Schemas routinely survive falsification.

The general pattern is premature commitments and insufficient revisions. Therefore, during a crisis, strategists are apt to rely on old, well-known schemas which might not fit the current circumstances. If they do so, crisis decisions based on these schemas rely on detailed, powerful, yet fragile and incomplete knowledge structures.

2. COGNITIVE SIMPLIFICATION AND COMPLEXITY

i. Deductive Reasoning. Computers are perfectly logical, they can't operate any other way. But evidence accumulating over the last 30 years suggests that human reasoning is unlike computer reasoning. Individual reasoning often fails the test of formal logic (Gardner, 1985). Yet, human reasoning works well in many tasks. The trick is to explain the power of human reasoning and its shortcomings.

Johnson-Laird (1983) has studied syllogistic reasoning. According to him, reasoners do not translate premises into truth tables, follow syllogistic rules, and so forth. Instead, they use mental models, an array of propositional representations of spatial, temporal, and causal relations.

These mental models are robust and viable under many conditions. Mental models account for a wide range of empirical data on reasoning. The models also work in computer simulation.

Strategists must draw important conclusions quickly during a crisis. Therefore, the logical abilities of strategists are an important subject. If strategists reasoning does not follow the tenets of formal logic, then important adjustments to decision making norms must ensue.

ii. Forgetting and Reconstructing Memory. Human memory is not like computer memory. From a monumental set of studies Bartlett concluded:

> "Remembering is not the re-excitation of innumberable fixed, lifeless, and fragmentary traces. It is an imaginative reconstruction, or construction, built out of the relation of our attitude towards a whole active mass of past experience. . . It is thus hardly ever really exact, even the most rudimentary cases of rote recapitulation, and it is not at all important that it should be so "(Bartlett, 1932, p.213).

Studies of memory find that (see Eysenck, 1984):

- The activity of remembering itself affects memory contents.
- Memories slowly decay, losing many of their peripheral associations and becoming less complex.
- Details are forgotten while meaning is retained.
- More difficult mental operations produce more forgetting.
- Eyewitness testimony is quite unreliable.
- When people encounter new information, memory structures sometimes fill in details about unknown or uncertain aspects of seemingly familiar phenomenon.
- People forget information when it doesn't fit their agenda or their plans.

Since strategists must remember prodigious amounts of information to support a crisis decision, active memory operations will affect their decisions.

iii. Reasoning by Analogy and Metaphor. Decision makers sometimes reason by analogy (Steinbruner, 1974; Shrivastava & Dutton, 1983).

Some metaphors seem to exert a powerful attraction ("the domino theory" of communist advance). Metaphors and analogies can help decision makers unravel perplexing choices.

But careless metaphors and analogies can also lead decision makers to false conclusions.

- Axelrod et al. (1976) uncovered examples of metaphorical reasoning in foreign policy.
- Isenberg (1984) found metaphors and analogies used to define organizational missions and to frame strategic problems.
- May (1975) and Neustadt & May (1986) traced a large number of cases false analogies lead top-level government officials to make bad decisions.

Metaphors and analogies are powerful attractions for crisis decision making, because they are available and simple.

3. OUTCOMES - BOLSTERING SINGLE ALTERNATIVE STRATEGIES.

Cognitive bolstering of decisions has been extensively studied by social psychologists. Festinger (1957) wrote that after any decision, "congnitive dissonance" - worries about the negative features of the chosen alternative - bother that decision maker. To end these worries, the decision maker restructures her thoughts in the direction of the chosen alternative.

Janis & Mann (1977) reviewed a large number of studies showing how decision makers also bolster their decisions before decision making:

". . . when a decision maker reaches a point when one alternative is clearly more satisfactory than others, he puts an end to residual conflict by judging that the uncertain good consequences are more probable than the uncertain bad consequences" (p. 94-95).

A number of studies show that strategic decisions often fail to evoke the complex reasoning which they deserve:

- Alexander (1979), Mintzberg et al., (1976), and Nutt (1984) each catalogued decision processes wherein only one alternative was seriously proposed, carefully evaluated, and implemented.

- Wright (1979) provided an example of how bolstering can affect strategy in his discussion of how General Motors management delayed small-car proposals by continually asking for more information on them.

- According to Yates (1983) auto industry executives discarded alternatives involving relatively greater uncertainty.

V. THINKING ABOUT MULTIPLE INTERESTS DURING A CRISIS

1. COGNITIVE ELABORATION AND MULTIPLE INTERESTS.

i. Kohlberg (1984) studied individuals' abilities to reason about moral questions. He developed a classification system consisting of four stages of moral development. Each level demarcates a more complex type of moral reasoning. At the postconventional level, the highest level of moral reasoning, judgments depend on critical assessments of conflicting rights and obligations, on following logical, universal principles according to conscience. Kohlberg said that few individuals reach the postconventional level of cognitive development.

Scholarly accounts and journalism report numerous examples of moral reasoning affecting top management decisions:

- John Z. DeLorean was described as a business hero one year (Wright, 1979) and a liar and megalomanic the next.

- Chief executives are charged with bugging offices and hiring spies (Harr, 1985).

- Recent books offer a portrait of arbitrary, greedy, and vengeful general managers (Iacocca & Novak, 1984; Mintz, 1985: Perry & Dawson, 1985; Auletta, 1986).

A few sensational, well-publicized cases of general manager's who did not acknowledge the rights of other groups does not substantiate a blanket indictment of general managers' moral reasoning. Instead, these incidents and reports highlight the importance of active cognitive elaboration as a legistimate topic in understanding general management thought and behavior

under pressure. The moral reasoning of general managers can affect crisis decisions, particularly as a strategist must weight the rights, obligations, and rewards for various organizational stakeholders.

2. COGNITIVE SIMPLIFICATION AND MULTIPLE INTERESTS

i. Groupthink. Janis studied stressful, important decisions in government (Janis, 1972). He reported that certain conditions: directive leadership, insulation of the group, and lack of systematic procedures for search and appraisal, combined with a cohesive group and high stress levels fosters groupthink:

". . a collective patterns of defensive avoidance, lack of vigilance, unwarranted optimism, sloganistic thinking, suppression of worrisome defects, and reliance on shared rationalizations to bolster the least objectionable alternative" (p.399).

Many corporate strategy making situations harbor the dangers of "groupthink" (Janis & Mann, 1977; Neustadt & May, 1986). Ironically, the current emphasis on developing cohesive and committed corporate cultures often reads like a prescription for groupthink during a crisis!

3. OUTCOME -- THE STAKEHOLDER'S REVENGE.

Freeman (1984) described the dangers of relying on oversimplified strategic analysis tools (such as PIMS or portfolio techniques). He pointed out that such techniques are tied to a traditional range of stakeholders (customers, owners, employees, suppliers), leaving out important groups (such as environmentalists, courts, and media) which can greatly influence corporate operations. Typical surprise experiences resulting from considering too narrow a set of stakeholders include General Motors collision with Ralph Nader, business episodes of "60 Minutes," the "Love Canal," incident, and the Tylenol poisonings. Crisis decisions which neglects important stakeholders may carry a heavy price.

VI. HOW EMOTIONAL INVOLVEMENT AFFECTS CRISIS THINKING

"Nothing is greater to one than one's self is."
Song of Myself, Walt Whitman

When texts discuss general managers' personalities and values they stick to positive role characterizations, such as the "organizational leader," "personal leader," and "architect of purpose." (Andrews, 1980). For instance, although many articles talk about the problem of handling a poorly motivated labor force, none discuss the problems of handling poorly motivated CEOs. They stress the strategist's "objectivity." This orientation hampers the development of an adequate empirical profile of strategists.

People view world events from their own privileged position in it. Ego-centrism permeates all aspects of thinking. Its effects are universal and significant. General manager's power and position permit them to indulge their personal motives, needs, and emotional problems in a fashion open to few other public figures- and certainly closed to most organization members. Popular books about organizational culture and excellent companies stress the desirability of emotional commitment.

Lombardo & McCall studied over 100 top managers working in large firms. Of those 100 executives, over 70 reported having had top management superiors who were emotionally intolerable. General managers were described variously as, ". . . a living snake and a pathological liar . . . Attila . . . Being wrong never slowed him down . . . he treated people like dirt . . he knew everything, wouldn't listen and was pompous" (quoted in Argyris, 1985 p.6).

It's not just the general manager, either. Kets De Vries and Miller (1986) pointed out that powerful top managers in centralized companies

exert large influence over important strategic decisions. Kets de Vries and Miller developed the idea that whole organizations can take on cognitive and behavioral pathologies mirroring the personality disorders of top executives. Their central thesis is that top managers' personality styles:

> ". . . may create shared fantasies that permeate all levels; influence organizational culture; and underlie a dominant organizational adaptive style . . . greatly influences decisions about strategy and structure" (p. 267).

Therefore, modern organizational arrangements — such as the rubber-stamp board of directors — can operate to reinforce strategists' ego-centric and emotion-driven behavior — especially during a crisis.

1. COGNITIVE ELABORATION AND EMOTIONAL INVOLVEMENT.

i. Illusions of Control. Larwood & Whittaker (1977) found that decision makers overestimated the degree to which outcome-events submitted to their personal control. Successful business strategists felt that they could easily control people and events. Encouraged by overconfidence, elaborate but unrealistic crisis-response plans can convince strategists (and other members) that future events will effortlessly into place. Hogarth & Makridakis (1981) pointed out that inasmuch as planners aim to control events, planners are especially susceptible to illusions of control (also, Schwenk, 1984). The dangers of illusions of control loom large under crisis circumstance.

2. COGNITIVE REDUCTION AND EMOTIONAL INVOLVEMENT.

i. Intolerance of Ambiguity and Dogmatism. Intolerance for ambiguity is defined as:

> ". . . . undue preference for symmetry, familiarity, definiteness, and regularity; tendency toward black-white solutions, oversimplified dichotomizing, and premature closure" (Adorno et. al., 1950).

Driver & Mock (1975) reported that "decisive" decision-makers became

rapidly overloaded by a complex, structured task. Dogmatic individuals rapidly decide, but use little information. They cling tenaciously to their decisions (Brengelmann, 1959) If some strategists can only tolerate little ambiguity, then they will make ill-considered decisions in crisis environments.

ii. Experience. Individual's capacities for noticing and attending to phenomena vary as a function of their experience, and training (Lawrence & Lorsch, 1967; Dearborn & Simon, 1958; Stevenson, 1976). The speed, complexity, and soundness of reasoning is partly a function of familiarity and knowledge organization. Some theorists (Kotter, 1982; Mintzberg & Waters, 1983; Isenberg, 1984: Ungson et al.,1981) claim that general managers process information accurately owing to their long and varied experience. But experience does not in itself constitute an unalloyed panacea. What matters are the lessons drawn from experience and the learning strategies applied to current situations.

Studies of intuition show that it is highly fallible (Dawes & Corrigan, 1974). Their research showed that simple quantitative models can outperform experts in making certain predictions. Argyris (1985) showed that "learning" often goes haywire during strategy deliberations for subtle reasons which executives don't understand. Executives making acquisitions have little insight into their own decisions (Stahl & Zimmerer, 1984),

This research suggests that the narrowing and focusing functions of experience are problematic in novel settings.

iii. Motivation. People react to information relevant to their goals (Einhorn & Hogarth, 1981). Setting high objectives apparently improves employee performance (Locke, 1968). Consequently, many theorists advocate MBO or goal-setting to ensure strategists compliance with organizational

objectives. They reason that a general managers' personal stakes in strategic decisions will improve their decision-making.

But high stakes, high stress, or high ego investment, can reduce cognitive efficiency, not just raise it (Schroeder & Suedfeld, 1971). Incentives increase the liklihood that decision makers will apply previously acquired skills that work well for simple routine tasks to complex, novel situations (McGraw & McCullers, 1979). Incentives impair performance on intrinsically interesting, open-ended, non-obvious tasks (McGraw, 1978). Incentives increase attentional selectivity, and decision making speed at the expense of flexibility and accuracy (Posner, xxxx). Fischoff & Goiten (1984) concluded;

"Although the evidence is still sketchy, at the moment there is no good empirical reason believe that judgmental biases are reduced appreciably . . . when a judgement carries high stakes . . . "(p. 506).

Therefore, the contemporary romance between MBO and planning is not an unmitigated benefit. High motivation can have adverse effects on the quality of strategic thinking in a crisis.

iv. Defensive reasoning. Argyris found three characteristics of defensive reasoning in strategy making: using soft data, making private inferences, and relying on conclusions which are not publicly tested (Argyris, 1985). Defensive routines are hard to spot and destroy because they are sustained by cultural norms of caring and thoughtfulness -- not by meanness or self-interest alone. Defensive routines quickly take hold when top managers try to communicate threatening information. For example, potential changes in strategy or poor job performance of another executive evoke defensive reasoning.

In top management settings, defensive routines corrupt learning and make important issues undiscussable. Defensive routines mask an important

distinction between theories executives espouse and theories they follow in their interpersonal behavior. They cover-up and bypass the critical need to examine reasoning and processes. Another result is that executives remain largely unaware of their own reasoning processes. Moreover, these defensive routines become self-reinforcing positive feedback loops. The potential of defensive reasoning for undermining crisis decisions is obvious.

3. OUTCOMES - ESCALATING COMMITMENTS

Executives personal identification with particular strategies can entrap them by encouraging "escalating commitments" to bad strategies in spite of unfavorable feedback (Staw & Ross, 1978). Executives attribute project difficulties to exogenous events, neglect investment limits, and ignore information about costs. Apparently, a combination of ego involvement (responsibility for projects) and illusions of control, channel decisions toward "forcing" projects which are not working. The stronger a strategist's original commitment to a bad project, the more likely he/she will commit additional resources to it.

Staw (1982) delineated four conditions likely to favor escalating commitments: personal responsibility for the action, personal responsibility for the consequences, public commitment to the project, and the irrevocability of the commitment. These conditions surely characterize many situations when general managers making strategic commitments during a crisis.

ii. Stress. "Hot" processes are set into motion by information which challenges the continued viability of a corporate strategy (Janis & Mann, 1977). "Hot" decision making situations involve uncertainty and doubt, important self interests, and less-than-perfect alternatives. These situations create strong decision-maker ego-involvement, and engender

acute anxiety about the high risks and high costs of choosing a mistaken strategy. Such conditions evoke emotional reactions such as hesitation, vacillation, emotional stress, agitation, and apprehension. Research shows a fairly consistent pattern of effects associated with high stress-high arousal (See Eysenck, 1984):

- increased information selectivity,
- faster decision making
- greater reliance on prior knowledge
- reduced ability to identify or discriminate unfamiliar patterns
- increased errors and impaired intellectual functioning.
- When decision makers fear a threat, they try to increase their control.

Stressful decision processes can lead to defective decision making processes, for instance adherance to wornout strategies, capricious changes in strategy, or defensive avoidance of strategic issues. Studies document how strategic decisions place strategists under emotional stress (Sorenson, 1966; Nixon, 1962; Wohlstetter, 1963; Iacocca & Novak, 1984). It stands to reason that crisis decisions, decisions which often take place under time pressure, involve high personal stakes, public commitments to uncertain courses of action, and political maneuvering, can generate very high stress levels.

4. SUMMARY OF EGO INVOLVEMENT

There is no theoretical or empirical reason to believe that strategists are especially detached, neutral, and calculating decision makers. On the contrary, their unusually high autonomy allows them to give freer rein to their emotions than other employees, for example their anger or impatience. Additionally, the work of a strategist has characteristics which stimulate emotional involvement: highly-visible personal

responsibility, high personal career stakes, risky decisions, dealing with conflicting interests, and extensive interpersonal contacts.

VII. PROMISING TECHNIQUES FOR COPING WITH UNCERTAINTY, COMPLEXITY, AND MULTIPLE INTERESTS AND EGO INVOLVEMENT IN A CRISIS

Evidence cited above makes a strong case that executives experience much trouble grappling with uncertainty. Even sophisticated decision makers experience difficulties learning complex relationships. Strategists can overlook, mis-specify, or miscalculate conflicts of interest. Furthermore, logic and research also show that crisis decision making situations can evoke powerful emotional forces.

Obviously, these difficulties can undermine the quality of decisions. But this evidence does not amount to an indictment of strategists' abilities. One need not conclude simply on the basis of this evidence that strategists are "dumb" or ineffective. To what standards of intelligent strategic thinking should one appeal? How high is the general level of strategic thinking across a set of interconnected set of decisions? How important are the mistakes?

Nevertheless, the evidence suggests that such mistakes can endanger the decision making process — especially during a crisis. For the most part, these shortcomings are cultural phenomena -- not genetic or programmed phenomena. Therefore these difficulties can be mitigated, alleviated or avoided altogether, thereby raising the level of effectiveness of decision making (regardless of how one judges its present sufficiency).

This section describes techniques which focus on dealing with these key challenges to quality decision making during a crisis. My objective

consists in summarizing a "toolbox" of presently or potentially useful techniques. The discussion is aimed at theorists, consultants and practitioners who are grappling with the practical problems of decision making. The proposals gathered here are ones which offer broad support for a crisis response process, not narrowly-defined concepts merely useful at one specific stage of decision making. For each technique I outline its principal focus, the problems which it deals with (or makes worse!) and important limitations. Finding ways to integrate these techniques presents an important future task.

1. DIALECTICS AND DEVIL'S ADVOCATE

Dialectical inquiry (Mason, 1969; Mitroff & Emshoff, 1979) and "Devil's Advocate" (Cosier, 1978) methods offer means for testing the quality and justifications for strategic decisions. When executives use dialectics or devil's advocate, strategic assumptions must face challenging critical evaluations.

i. Method. According to Mason & Mitroff (1981), strategic assumption surfacing and testing (a formal method for dialectics) is participative, adversarial, mind expanding, and integrative. The procedure basically requires splitting up executive groups on the basis of their strategy preferences, getting them to probe into the assumptions and presuppositions which surround a particular strategy, testing these assumptions with logic, debate, and perhaps additional information gathering, and accepting a group consensus on the best strategy.

ii. Benefits. These methods seem especially helpful in dealing with uncertainty, multiple interests, and ego involvement. Dialectics or Devil's Advocate promote the careful examination of uncertainties, paying attention to stakeholder groups involved with strategy, and exposing hidden self-interests.

iii. Limitations. Although dialectics is heralded as a method for strategic planning, its scope is limited to testing strategies already arrived at. If nobody knows what to do, dialectics are no help. Dialectics provides no help in defining strategic issues, scanning, or generating alternatives. Nor does dialectics offer help to the participants regarding how to handle the complex analyses dialectics might require. Additionally, dialectics' practical effectiveness has become a matter of debate.

2. CREATIVITY

Creative strategies are vital organizational assets. Generating creative strategies can represent a key output of strategic planning.

i. Methods. A multitude of methods for improving creativity have been proposed. Zwicky (1969) recommended morphological analysis. Many corporations have used synectics (Gordon, 1961) to develop metaphors and analogies to aid problem solving. "Conceptual blockbusting" explains a variety of techniques which can overcome or sidestep mental blocks to thinking (Adams, 1980).

ii. Benefits. Many different creative techniques can produce new interesting ideas. With the exception of synectics, most of these techniques work on a very narrow scope. That is, they are something executives do in a couple of hours one afternoon and it' over.

ii. Limitations. Presumably, any of these methods might generate a novel, valuable strategic idea for practitioners. In doing so, problems of uncertainty and complexity might be swept aside. Nor do most creative techniques provide for a systematic evaluation of their creative output. To put it another way, these techniques are tactical, not strategic in their relevance to crisis response processes.

We have few studies which compare different creative techniques in terms of their utility.

3. MULTIPLE PERSPECTIVE METHODS

i. Methods. Jung (1924) proposed a theory of individual differences in problem solving. Jung's theory divides decision-makers into four problem solving types. These problem-solving types derive from individual cognitive preferences: feeling versus thinking, and sensing versus intuition. Also, contemporary studies also show that some people are more cognitively complex than others (Streufert & Streufert, 1978).

Higher cognitive complexity correlates with more fully developed abilities to differentiate and integrate information, higher stages of adult development, accurate perceptions, and effective behavior (Bartunek et. al., 1983). Authors have discussed the implications of Jung's theory for constructing teams of strategists (Ramaprasad & Mitroff, 1984). A strategist (or a team) should collect a set of advisors whose cognitive styles complement each other to deal with a crisis. The cognitive complexity prespectives argues that those persons selected should also score high cognitive complexity, to correspond to the complexity of strategic issues. All that is required is the administration of simple standard tests to potential participants.

- Bolman and Deal (1984) developed a scheme for analyzing situtations from multiple theoretical perspectives. They showed that separate "structural", "human resources", "political", and "symbolic" approaches help frame complex situations. "Frames" provide a method for structuring and categorizing uncertainty, for defining objectives, and for eliciting alternatives. The method offers help in diagnosis, alternative generation, and implementation.

- Linstone et. al., (1981) offered a different multiple-perspective

approach for dealing with complex technical decisions. Their model basically derives from Allison's Essence of Decision (Allison, 1971). This multiple perspectives concept investigates the interrelationships of three broad areas: technical, organizational, and personal; including elements technology, physical setting, socio-technical setting, technopersonal setting, organizational actors, individual actors, political action, and decisions. A team is chosen, with representatives from each perspective. These teams are interparadigmatic rather than interdisciplinary. The output ranges from technical reports, vignettes, interviews, oral briefings, stories, and fictional formats.

ii. Benefits. Each of these theoretical perspective implies that teams of strategists surpass individual decision makers in making quality strategic decisions. The primary improvement comes from a the group's better appreciation of the complexities of the strategic issue at hand by virtue of their differences in training, cognitive styles, and interpersonal orientations. The models also highlight conflicts of interest, and exploring uncertainties.

Linstone et. al. offers more systematic procedures than Bolman & Deal or Ramprasad & Mitroff. Additionally, Linstone's ideas of expertise and communication cover a much broader range than the Bolman & Deal model, and their procedures are sensitive to political and personal sensitivities of implementing the process. These are important issues during a crisis.

iii. Limitations. From a time and resources perspective, the problem of integrating multiple perspectives is paramount. Each of these models can generate much more complexity than it is prepared to integrate. Surprisingly, Linstone et. al. are not sure whether integration is either possible or desirable. Lastly, we have little evidence about the relative effectiveness of these methods in practical settings.

4. DECOMPOSITION AND HIERARCHIES

i. Decomposition methods. Decision makers must decompose complex strategic issues into smaller elements so that an organization can take advantage of its specialized knowledge and capabilites. Decomposition methods also facilitate parallel information processing, which is faster than sequential processing.

Simon (1960), Braybrooke & Lindblom (1963), Kepner & Tregoe (1965) and described methods for problem separation. MacCrimmon & Taylor (1976) recounted how to look for the changes that precipitated an issue, how to factor complex problems into simpler subproblems, and how to focus on controllables to solve problems.

ii. Hierarchies. Hierarchies allows individuals or groups to specify tangible and intangible elements of a decision problem. Saaty et. al. (1982) developed a method called "Analytical Hierarchies" to analyze decisions. It allows groups to assess complex decisions involving uncertainty, multiple levels of criteria, and multiple alternatives. An optimum solution is calculated on the basis of these criteria and estimates of decision parameters and consequences.

Multi-attribute utility analysis (MAU) is another technique for structuring complex decisions (Taylor, 1984).

ii. Benefits. These methods have the virtues inexpensively using practitioner preferences and knowledge in combination with with computationally simple methods. They have the power to integrate complex considerations. Moreover, hierarchical methods offer the prospect of rationality and optimality consistent with the spirit of strategic planning. Also, they work fast.

iii. Limitations. In relying on practitioner knowledge, problems of

validity, reliability, and self-interest naturally arise. Certain strategic considerations do not lend themselves to computation. Also, these techniques tend to suppress the ambiguous and conflict-laden aspects of information and decision criteria.

5. STRATEGIC DECISION SUPPORT

The rapid evolution of computing systems has made possible interesting new potential aids for decision making.

i. Methods. Several decision supports for unstructured problems are now available:

- Cognitive Maps. Cognitive maps use matrix algebra to represent complex cause-effect relationships (Diffenbach, 1982; Ramaprasad & Poon, 1985). All that is needed is questionnaire, or console time from a strategist. Mapping easily adapts to a planning context because the data derive directly from practitioners' practical knowledge of their industry, it is mathematically simple, and the software runs on personal computers (Stubbart & Ramaprasad, 1986). Software provides the user-strategists with routines to map their knowledge, to explore interralationships, logic, and consequences within their maps. Similar methods include systems dynamics (Forrester, 1976) a systems simulation approach used by interdisciplinary teams.

- Expert Systems. Expert systems are a short step from cognitive mapping. Designers attempt to catalogue and categorize expert knowledge. These systems model professional expertise in making inferences from specific unstructured or ill-defined problems, such as medical diagnoses or tax planning. Representing the knowledge of expert strategists would take the first step toward developing "expert strategy systems." This software could potentially hurdle the barrier of

"intuitive" strategy, codifying such knowledge, and making effective strategic thinking available to a wider range of organizational members.

ii. Benefits. Methods in this category are limited to the narrow but important problem of exploring and understanding complexity.

iii. Limitations. The methods are each limited by reliance of the strategists existing knowledge. Nor do these techniques contend with the problems of conflict of interest or ego involvement. Also, crises are likely to fall outside the normal parameters of expert problems.

6. STAKEHOLDER ANALYSIS

i. Method. Freeman (1984) described a method for "stakeholder analysis" which incorporates the viewpoints and values of a wide range of organizational participants. Stakeholder analysis integrates a concern for multiple constituencies with traditional planning queries such as "What is our business," with new issues such as "who are our stakeholders?" It is a highly analytical procedure, calling for much information about a wide range of stakeholders.

ii. Benefits. Its major contribution is the central place it assigns to the analysis of organizational stakeholders.

iii. Limitations. Freeman's method generates much complexity. But the stakeholder technique doesn't give much assistance regarding how to synthecize the complex data it generates, or how to make decisions about stakeholder issues. Stakeholder analysis says nothing about uncertainty. Furthermore, it is surprising that a method so well attuned to conflict of interests is inattentive to the conflict of interest and ego issues which using the model will bring to the fore.

7. PREVENTING GROUPTHINK

i. Method. Janis presented tactics for preventing groupthink in policy making groups:

- leaders should not state decision preferences at the outset.
- leaders should encourage criticism and doubt.
- every meeting should contain a 'devil's advocate'
- split the main group into sub-groups to stimulate options.
- devote special time to studying rival's signals and build alternative scenarios of rival's intentions.
- hold a second meeting after a decision is reached to voice residual doubts and rethink.
- bring individuals from outside the core group to each meeting.
- encourage members to discuss the groups' deliberations with trusted colleagues.
- establish multiple groups (with separate chairmen) to discuss a single issue.

ii. Benefits. Janis (1972) and Janis & Mann (1977) specifically studies high-pressure, crisis decision making. If all these tactics can be put into place, then instances of groupthink might be averted. Uncertainty can be acknowledged under these conditions. With outsiders present, at least some differing interests might be weighed.

iii. Limitations. Preventing groupthink seems to depend on starting with leaders and followers who are unlikely to fall prey to groupthink anyway. After all, "encouraging criticism and doubt" for example, calls for a rare restraint on the part of leaders and daring on the part of subordinates. The tactics will increase uncertainty, generate additional complexity (e.g., additional groups deliberating).

S. DISMANTLING DEFENSIVE ROUTINES.

i. Method. Intervention is accomplished by interviews, observation, and role-playing using case studies (Argyris, 1985). Dealing with defensive routines requires several difficult steps. First, diagnose and map the nature of strategic organizational issues. Next, facilitators guide executives in exploring executives, defensive reasoning processes about strategic problems and issues.

ii. Benefits. Executives learn skills for dealing forthrightly with threatening information in planning, decreasing the gap between "theories

in use" versus "espoused theories." Confronting and dismantling defensive routines leads to using more valid data; more explicit premises and inferences, and testable conclusions.

iii. Limitations. Argyris' method rests on very optimistic assumptions about how groups of executives can learn to deal forthrightly with their emotions and self-interests. The method is has no relevance to uncertainty or complexity issues. Additionally, this process takes a long time to work.

9. COPING WITH STRESS

Organizations can take a number of steps to control the stress levels of executives who are involved in strategic decisions.

i. Methods. Whetton and Cameron (1984) list a number of steps for defusing stress:

- Time management training.
- Support networks for executives.
- Sponsor physical activities.
- Arrange planning events, meetings, reviews, etc. in ways that avoid generating unnecessary stress.

ii. Benefits. Stress reduction has a positive effect on executives abilities to process uncertain and complex information. Executives experiencing less stress (especially ego-threatening induced stress) might act less-preoccupied with self-interest calculations. Studies document some of the stress-reduction benefits of company efforts.

iii. Limitations. Stress reduction probably has no relationship to conflict of interest issues. Additionally, research evidence about the relative benefits of different that stress reduction programs is not year available.

VIII CONCLUSION

Research evidence shows that crisis decisions place great strains on human abilities to accurately process information. The intersection of crisis decision contexts and human capabilites form a central leverage point driving design considerations.

Because of the enormous variety of circumstances associated with organizational crises, no single framework of steps is likely to prove useful in all situations. Therefore, this paper offers no grand, unifying framework for crisis response.

But the techniques listed in Section xx offer scope for some integration. For example, an expansion technique like stakeholder analysis might be linked up to cognitive mapping, and in turn analytical hierarchies. Planning for crisis response entails gathering a broad array of techniques which can be flexibly brought to bear in line with local circumstances and conditions. In advance, consultants, technical experts, and executives can learn to use the techniques, perhaps through simulation.

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